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**Operation & Maintenance Plan  
Pumping Plant (Code 533)**

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Landowner/Operator: \_\_\_\_\_ Date: \_\_\_\_\_  
NRCS Service Center: \_\_\_\_\_ Conservation District: \_\_\_\_\_  
Practice Location: \_\_\_\_\_ Tract/Field ID: \_\_\_\_\_  
(Lat/Long or UTM Coord, or Sec/TS/R)

**Expected Lifespan**

The minimum expected lifespan of this practice is at least 15 years.

A properly operated and maintained **Pumping Plant** is an asset to your property. The purpose of this practice is to:

- Supply water to an irrigation system
- Provide water for a grazing system
- Removal of excessive surface and subsurface water
- Transfer animal waste

The life of the practice can be assured and usually extended by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. The following are some requirements to help you develop a good operation and maintenance program.

**Safety**

1. When necessary to exclude livestock and human access, provide fencing, gates and other barriers. Inspect fence and gates at least once a year. Repair and/or replace damaged fences and gates as soon as possible. Keep gates closed at all times.
2. Take precautionary measures to prevent spills of fuels and lubricants. Promptly clean up spills and prevent movement of fuels or lubricants to any water body.

**Operation**

1. Follow the pump manufacturer's specifications for installation, start-up procedures, operation, etc.

**Inspection and Maintenance**

1. Maintain grounding rods and all electrical equipment and components in good working condition.
2. Maintain all safety shields on pumps, motors, or other electrical or mechanical equipment. If removed to service equipment, replace shields before operating equipment again.
3. Routinely test and inspect all automated components such as timers, float switches, solenoid valves, etc. to assure they are properly functioning.
4. If applicable, frequently check power unit, fuel storage facilities, and fuel lines, for leaks and repair as needed.
5. Inspection and maintenance of anti-siphon devices, if applicable.
6. Inspection and maintenance of secondary containment facilities, if applicable.
7. Inspect all safety features, to ensure proper placement and function.
8. Disconnect electrical current before servicing or retrofitting any electrically powered equipment. Check for stray electrical current.
9. At the Start of the Season:
  - a. Reconnect pump to piping using new gaskets or pipe-dope.

- b. Inspect that the pump shaft turns freely.
  - c. Inspect intake and discharge piping for proper support.
  - d. Inspect the pump foundation for soundness and make sure pump is securely bolted to the platform.
  - e. Inspect all valves for proper open and closure and ensure proper operation of any backflow protection devices.
  - f. Replace, repack or tighten the seals when leakage is in excess of the manufacturer's specifications.
10. During the Season:
- a. Consult the Irrigation Water Management Plan to avoid overwatering and excessive pumping costs.
  - b. Run pump at the specified rate to avoid cavitation and damage to the pump.
  - c. Clean the suction system periodically and replace screen or foot valve as needed. Inspect for debris, sediment, minerals, algae and other materials which may restrict system flow.
  - d. When initially filling and/or pressurizing the pipes, fill the pipe slowly or open the pipe system to the atmosphere to prevent water hammer damage. Use flow meters or other means to monitor the flow rate in the pipeline. Consult the pump operator's manual for more specific details.
  - e. Inspect all piping for leakage or possible misalignment. Repair and make adjustments as needed.
  - f. Keep motor shaded, clean and well vented.
  - g. Monitor irrigation pump weekly for excessive vibration, noise, or temperature. Inspect for cracks or holes in the pump case.
  - h. Inspect all mechanical components (power unit, pump, drive train, etc.) in accordance with the manufacturer's specifications. Maintain, repair or replace as necessary. Service impeller, wear rings, and pump package as needed.
  - i. Divert surface drainage away from the pump to avoid ponding of water.
  - j. Immediately repair any vandalism, vehicular or livestock damage to the structure, eroded area around the structure and any damage caused by rodents or borrowing animals.
11. At the end of the season:
1. Winterize the pumping plant with the following steps:
- Clean the unit.
  - Drain all water from the pump, primer, suction and discharge lines prior to freezing.
  - Lubricate bearings (refer to owner's manual) and any exposed metal.
  - Remove tension from any bolts.
  - Remove and store all pressure and vacuum gauges.
  - Seal all openings. Shelter pump from the elements.
  - Follow manufacturers procedures for:
    - i. Proper start-up and shut-down procedures for the operation of the pumping plant.
    - ii. Procedures to protect the system from damage due to freezing temperatures.

#### Operation, Maintenance and Inspection Costs

- 1. It is estimated that the annual time to routinely inspect and make minor repairs to your Spring Development will be:
  - a. Start Up (Begin Season) = 5 hours/year
  - b. Inspection = 1 hour/week
  - c. Minor Repairs = 1 hour/week
  - d. Flushing System = 1 hour/week

- e. Filter Replacement = 4 hours/year
  - f. Change Oil = 1 time/500 hours
  - g. Winterize = 5 hours/year
  - h. Major repairs to damage caused by major storm event will require extra time and materials.
2. Most minor repairs can be made by the operator using basic hand tools. However, major repairs to the pump, motor, pipe, gauges, etc. may require hiring a professional experienced in these repairs and improvements.

### **Specific Site Requirements**